

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Previously Presented) The optical glass of claim 11 exhibiting a refractive index in the range of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, and a viscosity at a liquid phase temperature equal to or higher than 0.4 Pa·s.

2. (Previously Presented) The optical glass of claim 108 exhibiting a refractive index in the range of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, and a glass transition temperature equal to or less than 540°C.

Claims 3 - 10 (Canceled)

11. (Previously Presented) An optical glass comprising as molar percentages, 15-30 percent of P₂O₅; 0.5-15 percent of B₂O₃; 5-25 percent of Nb₂O₅; 6-40 percent of WO₃; 4-45 percent of at least one R'₂O selected from the group consisting of Li₂O, Na₂O, and K₂O, 1-5 percent of K₂O; 0-30 percent (excluding 30 percent) of at least one RO selected from the group consisting of BaO, ZnO, and SrO; and 2-9 percent of TiO₂; with the total content of the above-stated components being equal to or more than 95 percent, and wherein the optical glass comprises 2-30 molar percent of Li₂O and does not comprise an amount of GeO₂.

12. (Original) The optical glass of claim 11 wherein said optical glass comprises 0-25 molar percent (excluding 0 molar percent) of BaO.

Claims 13-16 (Canceled)

17. (Previously Presented) The optical glass of claim 11 wherein said optical glass has the composition comprising, as essential components, P_2O_5 , B_2O_3 , WO_3 , Nb_2O_5 , TiO_2 , BaO, ZnO, Li_2O , Na_2O and K_2O or the composition comprising the above essential components and Sb_2O_3 .

18. (Previously Presented) The optical glass of claim 108 wherein said optical glass has the composition comprising, as essential components, P_2O_5 , B_2O_3 , WO_3 , Nb_2O_5 , TiO_2 , BaO, ZnO, Li_2O , Na_2O and K_2O or the composition comprising the above essential components and Sb_2O_3 .

Claims 19-58 (Canceled)

59. (Previously Presented) The optical glass of claim 11 wherein said optical glass comprises 0-11 percent of BaO.

60. (Previously Presented) The optical glass of claim 11 wherein said total quantity of Li_2O , Na_2O , and K_2O is equal to or more than 29 percent.

61. (Previously Presented) The optical glass of claim 11, wherein said optical glass has a density of oxygen atoms contained in the range of from 4.2×10^{22} to $5.2 \times 10^{22}/\text{cm}^3$.

62. (Previously Presented) The optical glass of claim 108 wherein said optical glass has a density of oxygen atoms contained in the range of from 4.2×10^{22} to $5.2 \times 10^{22}/\text{cm}^3$.

Claims 63-69 (Canceled)

70. (Previously Presented) The optical glass of claim 11 wherein said optical glass exhibits a glass transition temperature equal to and/or less than 530°C and a yield point temperature equal to or less than 580°C .

71. (Previously Presented) The optical glass of claim 108 wherein said optical glass exhibits a glass transition temperature equal to and/or less than 530°C and a yield point temperature equal to or less than 580°C .

Claims 72-73 (Canceled)

74. (Previously Presented) The optical glass of claim 11 wherein said optical glass exhibits a refractive index in the range of from 1.7 to 2.0, an Abbé number in the range of from 20 to 32.

75. (Previously Presented) The optical glass of claim 108 wherein said optical glass exhibits a refractive index in the range of from 1.7 to 2.0, an Abbé number in the range of from 20 to 32.

Claims 76 - 77 (Canceled)

78. (Previously Presented) The optical glass of claim 11 wherein said optical glass exhibits a liquid phase temperature equal to or less than 970°C.

79. (Previously Presented) The optical glass of claim 108 wherein said optical glass exhibits a liquid phase temperature equal to or less than 970°C.

Claims 80 – 85 (Canceled)

86. (Previously Presented) An optical part being composed of the optical glass of claim 11.

Claim 87 (Canceled)

88. (Previously Presented) An optical part being composed of the optical glass of claim 60.

89. (Previously Presented) An optical part being composed of the optical glass of claim 108.

Claims 90 – 104 (Canceled)

105. (Previously Presented) The optical glass of claim 108 wherein said optical glass comprises 0-11 percent of BaO.

Claims 106 – 107 (Canceled)

108. (Previously Presented) An optical glass comprising, as molar percentages, 17-30 percent of P_2O_5 , 1-10 percent of B_2O_3 (where the total quantity of P_2O_5 and B_2O_3 is 18-32 percent), 5-25 percent of WO_3 , 10-23 percent of Nb_2O_5 , 1-9 percent of TiO_2 (where the total quantity of WO_3 , Nb_2O_5 and TiO_2 is 28-40 percent), 5-22 percent Li_2O , 4-22 percent Na_2O , 0.5-7 percent K_2O (where the total quantity of Li_2O , Na_2O , and K_2O is 12-38 percent), 2-23 percent of BaO, 1-10 percent of ZnO (where the total quantity of BaO and ZnO is 3-25 percent), 0-8 percent of CaO, 0-8 percent of SrO, 0-4 percent of Al_2O_3 , 0-4 percent of Y_2O_3 , 0-1 percent of Sb_2O_3 , and 0-1 percent of As_2O_3 , where the total of all of these components is not less than 94 percent, and wherein the optical glass does not comprise an amount of GeO_2 .

Claim 109 (Canceled)

110. (Previously Presented) The optical glass of claim 108 wherein said total quantity of Li_2O , Na_2O , and K_2O is equal to or more than 29 percent.

Claim 111 – 112 Canceled)

113. (Currently Amended) ~~The glass preform of claim 111~~ A glass preform for precision press-molding composed of an optical glass comprising, as molar percentages, 15-30 percent of P_2O_5 , 0.5-15 percent of B_2O_3 , 5-25 percent of Nb_2O_5 , 6-40 percent of WO_3 , 4-45 percent of at least one R'_2O selected from the group consisting of Li_2O , Na_2O , and K_2O , 1-5 percent of K_2O , 0-30 percent (excluding 30 percent) of at least one RO selected from the group consisting of BaO , ZnO , and SrO ; and 2-9 percent of TiO_2 ; with the total content of the above-stated components being equal to or more than 95 percent, wherein the optical glass has the composition comprising, as essential components, P_2O_5 , B_2O_3 , WO_3 , Nb_2O_5 , TiO_2 , BaO , ZnO , Li_2O , Na_2O , and K_2O or the composition comprising the above essential components and Sb_2O_3 .

Claim 114 -116 (Canceled)

117. (Currently Amended) An optical glass comprising, as molar percentages:
12-34 percent of P_2O_5 ;
0.2-15 percent of B_2O_3 , where the total quantity of P_2O_5 and B_2O_3 is 15-35 percent;
2-40 percent of WO_3 ;
0-25 percent (excluding 0 percent) of Nb_2O_5 ;
0 to 10 percent (excluding 0 percent) of TiO_2 , where the total quantity of WO_3 , Nb_2O_5 and TiO_2 is 20-45 percent;
0-25 percent (excluding 0 percent) of BaO ;
0-20 percent (excluding 0 percent) of ZnO , where the total quantity of BaO and ZnO is less than 30 percent;

2-30 percent of Li_2O ;
2-30 percent of Na_2O ;
0-15 percent (excluding 0 percent) of K_2O , where the total quantity of Li_2O , Na_2O , and K_2O is 29-45 percent;
0-10 percent of CaO ;
0-10 percent of SrO ;
0-5 percent of Al_2O_3 ;
0-5 percent of Y_2O_3 ;
0-1 percent of Sb_2O_3 ; and
0-1 percent of As_2O_3 , where the total quantity of all of the above-listed components is equal to or more than 94 percent; and
wherein said optical glass comprises, as essential components, P_2O_5 , B_2O_3 , WO_3 , Nb_2O_5 , TiO_2 , BaO , ZnO , Li_2O , Na_2O and K_2O , and does not comprises an amount of GeO_2 .

118. (Currently Amended) An optical glass comprising, as molar percentages:
12-34 percent of P_2O_5 ;
0.2-15 percent of B_2O_3 , where the total quantity of P_2O_5 and B_2O_3 is 15-35 percent;
2-40 percent of WO_3 ;
0-25 percent (excluding 0 percent) of Nb_2O_5 ;
0 to 10 percent (excluding 0 percent) of TiO_2 , where the total quantity of WO_3 , Nb_2O_5 and TiO_2 is 20-45 percent;
0-11 percent (excluding 0 percent) of BaO ;
0-20 percent (excluding 0 percent) of ZnO , where the total quantity of BaO and ZnO is less than 30 percent;

2-30 percent of Li_2O ;

2-30 percent of Na_2O ;

0-15 percent (excluding 0 percent) of K_2O , where the total quantity of Li_2O , Na_2O and K_2O is 10-45 percent;

0-10 percent of CaO ;

0-10 percent of SrO ;

0-5 percent of Al_2O_3 ;

0-5 percent of Y_2O_3 ;

0-1 percent of Sb_2O_3 ; and

0-1 percent of As_2O_3 , where the total quantity of all of the above-listed components is equal to or more than 94 percent; and

wherein said optical glass comprises, as essential components, P_2O_5 , B_2O_3 , WO_3 , Nb_2O_5 , TiO_2 , BaO , ZnO , Li_2O , Na_2O and K_2O , and does not comprises an amount of GeO_2 .

119. (Previously Presented) The optical glass of claim 117 wherein said optical glass comprises Sb_2O_3 .

120. (Previously Presented) The optical glass of claim 118 wherein said optical glass comprises Sb_2O_3 .

121 (Previously Presented) The optical glass of claim 117 wherein the content of TiO_2 is 2 percent or more.

122. (Previously Presented) The optical glass of claim 117 wherein the content of K_2O is 1 percent of more.

123. (Previously Presented) The optical glass of claim 118 wherein the content of TiO_2 is 2 percent or more.

124. (Previously Presented) The optical glass of claim 118 wherein the content of K_2O is 1 percent of more.

Claims 125-127 (Canceled)

128. (Previously Presented) An optical glass exhibiting a refractive index in the range of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, a liquid phase temperature equal to or less than $970^{\circ}C$, and a transmittance λ_{80} equal to or less than 500 nm and a transmittance λ_5 equal to or less than 385nm, wherein said optical glass has a composition comprising, as essential components, P_2O_5 , B_2O_3 , WO_3 , and TiO_2 , does not comprise substantial amount of GeO_2 , and comprises, as molar percentages, 12-34 percent of P_2O_5 ; 0.2-15 percent of B_2O_3 ; 0-25 percent of Nb_2O_5 ; 0-40 percent (excluding 0 percent) of WO_3 ; 2-10 percent of TiO_2 ; 4-45 percent of at least one R'_2O selected from the group consisting of Li_2O , Na_2O , and K_2O ; and 0-30 percent (excluding 30 percent) of at least one RO selected from the group consisting of BaO , ZnO , and SrO ; with the total content of the above-stated components being equal to or more than 94 percent.

Claims 129 – 143 (Canceled)

144. (Previously Presented) A precision press molding glass preform composed of the optical glass of claim 128.

Claims 145 – 173 (Canceled)

174. (Previously Presented) An optical part composed of the optical glass of claim 128.

Claims 175 – 189 (Canceled)

190. (Previously Presented) An optical part prepared by precisely press molding the precision press molding preform glass of claim 144.

Claims 191-216 (Canceled)

217 (New) An optical glass comprising, as molar percentages, 14-32 percent of P_2O_5 , 0.5-13 percent of B_2O_3 (where the total quantity of P_2O_5 and B_2O_3 is 16-32 percent), 5-40 percent of WO_3 , 5-23 percent of Nb_2O_5 , 1-9 percent of TiO_2 (where the total quantity of WO_3 , Nb_2O_5 and TiO_2 is 25-42 percent), 5-27 percent Li_2O , 3-27 percent Na_2O , 0.5-7 percent K_2O (where the total quantity of Li_2O , Na_2O , and K_2O is 12-43 percent), 0-23 percent (excluding 0 percent) of BaO , 0-17 percent (excluding 0 percent) of ZnO (where the total quantity of BaO and ZnO is 0-25 percent), 0-8 percent of CaO , 0-8 percent of SrO , 0-4 percent of Al_2O_3 , 0-4 percent of Y_2O_3 , 0-1 percent of Sb_2O_3 , and 0-1 percent of As_2O_3 , where

the total of all of these components is not less than 94 percent, wherein the optical glass does not comprise an amount of GeO_2 , and wherein said optical glass has the composition comprising, as essential components, P_2O_5 , B_2O_3 , WO_3 , Nb_2O_5 , TiO_2 , BaO , ZnO , Li_2O , Na_2O and K_2O or the composition comprising the above essential components and Sb_2O_3 .

218. (New) An optical glass comprising, as molar percentages, 14-32 percent of P_2O_5 , 0.5-13 percent of B_2O_3 (where the total quantity of P_2O_5 and B_2O_3 is 16-32 percent), 5-40 percent of WO_3 , 5-23 percent of Nb_2O_5 , 1-9 percent of TiO_2 (where the total quantity of WO_3 , Nb_2O_5 , and TiO_2 is 25-42 percent), 5-27 percent Li_2O , 3-27 percent Na_2O , 0.5-7 percent K_2O (where the total quantity of Li_2O , Na_2O , and K_2O is 12-43 percent), 0-23 percent of BaO , 0-17 percent of ZnO (where the total quantity of BaO and ZnO is 0-25 percent), 0-8 percent of CaO , 0-8 percent of SrO , 0-4 percent of Al_2O_3 , 0-4 percent of Y_2O_3 , 0-1 percent of Sb_2O_3 , and 0-1 percent of As_2O_3 , where the total of all of these components is not less than 94 percent, wherein the optical glass does not comprise an amount of GeO_2 , and wherein said total quantity of Li_2O , Na_2O , and K_2O is equal to or more than 29 percent.

219. (New) The optical glass of claim 217, wherein the optical glass exhibits a refractive index of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, and a viscosity at a liquid phase temperature equal to or higher than 0.4 Pa•s.

220 (New) The optical glass of claim 218, wherein the optical glass exhibits a refractive index of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, and a viscosity at a liquid phase temperature equal to or higher than 0.4 Pa•s

221. (New) The optical glass of claim 108, wherein the optical glass exhibits a refractive index of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, and a viscosity at a liquid phase temperature equal to or higher than 0.4 Pa•s

222 (New) The optical glass of claim 128, wherein the optical glass exhibits a refractive index of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, and a viscosity at a liquid phase temperature equal to or higher than 0.4 Pa•s

223. (New) The optical glass of claim 11, wherein the optical glass exhibits a refractive index of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, and a glass transition temperature equal to or less than 540°C.

224. (New) The optical glass of claim 218, wherein the optical glass exhibits a refractive index of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, and a glass transition temperature equal to or less than 540°C.

225. (New) The optical glass of claim 128, wherein the optical glass exhibits a refractive index of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, and a glass transition temperature equal to or less than 540°C.

226. (New) The optical glass of claim 217, wherein the optical glass exhibits a refractive index of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, and a glass transition temperature equal to or less than 540°C.

227. (New) The optical glass of claim 11, wherein the optical glass exhibits a refractive index of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, a transmittance λ 80 equal to or less than 500 nm, and a transmittance λ 5 equal to or less than 385 nm.

228. (New) The optical glass of claim 218, wherein the optical glass exhibits a refractive index of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, a transmittance λ 80 equal to or less than 500 nm, and a transmittance λ 5 equal to or less than 385 nm.

229. (New) The optical glass of claim 118, wherein the optical glass exhibits a refractive index of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, a transmittance λ 80 equal to or less than 500 nm, and a transmittance λ 5 equal to or less than 385 nm.

230. (New) The optical glass of claim 217, wherein the optical glass exhibits a refractive index of from 1.75 to 2.0, an Abbé number in the range of from 20 to 28.5, a transmittance λ 80 equal to or less than 500 nm, and a transmittance λ 5 equal to or less than 385 nm.

231. (New) The optical glass of claim 128, wherein the optical glass comprises 0-25 molar percent (excluding 0 molar percent) of BaO.

232. (New) The optical glass of claim 218, wherein the optical glass has the composition comprising, as essential components, P_2O_5 , B_2O_3 , WO_3 , TiO_2 , BaO , ZnO , Li_2O , Na_2O and K_2O or the composition comprising the above essential components and Sb_2O_3 .

233. (New) The optical glass of claim 128, wherein the optical glass has the composition comprising as essential components, P_2O_5 , B_2O_3 , WO_3 , TiO_2 , BaO , ZnO , Li_2O , Na_2O and K_2O or the composition comprising the above essential components and Sb_2O_3 .

234. (New) The optical glass of claim 218, wherein the optical glass comprises 0-11 percent of BaO .

235. (New) The optical glass of claim 128, wherein the optical glass comprises 0-11 percent BaO .

236. (New) The optical glass of claim 217, wherein the optical glass comprises 0-11 percent BaO .

237. (New) The optical glass of claim 128, wherein the total quantity of Li_2O , Na_2O and K_2O is equal to or more than 29 percent.

238. (New) The optical glass of claim 217, wherein the total quantity of Li_2O , Na_2O and K_2O is equal to or more than 29 percent.

239. (New) The optical glass of claim 218, wherein the optical glass has a density of oxygen atoms in the range of from 4.2×10^{22} to $5.2 \times 10^{22}/\text{cm}^3$.

240. (New) The optical glass of claim 128, wherein the optical glass has a density of oxygen atoms in the range of from 4.2×10^{22} to $5.2 \times 10^{22}/\text{cm}^3$.

241. (New) The optical glass of claim 217, wherein the optical glass has a density of oxygen atoms in the range of from 4.2×10^{22} to $5.2 \times 10^{22}/\text{cm}^3$.

242. (New) The optical glass of claim 218, wherein the optical glass exhibits a glass transition temperature equal to or less than 530°C and a yield temperature equal to or less than 580°C .

243. (New) The optical glass of claim 128, wherein the optical glass exhibits a glass transition temperature equal to or less than 530°C and a yield temperature equal to or less than 580°C .

244. (New) The optical glass of claim 217, wherein the optical glass exhibits a glass transition temperature equal to or less than 530°C and a yield temperature equal to or less than 580°C .

245. (New) The optical glass of claim 218, wherein the optical glass exhibits a refractive index of from 1.7 to 2.0, and an Abbé number in the range of from 20 to 32.

246. (New) The optical glass of claim 217, wherein the optical glass exhibits a refractive index of from 1.7 to 2.0, and an Abbé number in the range of from 20 to 32.

247. (New) The optical glass of claim 218, wherein the optical glass exhibits a liquid phase temperature equal to or less than 970°C.

248. (New) The optical glass of claim 217, wherein the optical glass exhibits a liquid phase temperature equal to or less than 970°C.

249. (New) The optical glass of claim 218, wherein the content of TiO_2 is 2 percent or more.

250. (New) The optical glass of claim 108, wherein the content of TiO_2 is 2 percent or more.

251. (New) The optical glass of claim 217, wherein the content of TiO_2 is 2 percent or more.

252. (New) The optical glass of claim 218, wherein the content of K_2O is 1 percent or more.

253. (New) The optical glass of claim 108, wherein the content of K_2O is 1 percent or more.

254. (New) The optical glass of claim 128, wherein the content of K_2O is 1 percent or more.

255. (New) The optical glass of claim 217, wherein the content of K_2O is 1 percent or more.

256. (New) The optical glass of claim 11, wherein the optical glass comprises Sb_2O_3 .

257. (New) The optical glass of claim 218, wherein the optical glass comprises Sb_2O_3 .

258. (New) The optical glass of claim 108, wherein the optical glass comprises Sb_2O_3 .

259. (New) The optical glass of claim 128, wherein the optical glass comprises Sb_2O_3 .

260. (New) The optical glass of claim 217, wherein the optical glass comprises Sb_2O_3 .

261. (New) A glass preform for precision press-molding composed of the optical glass of claim 11.

262. (New) A glass preform for precision press-molding composed of the optical glass of claim 218.

263. (New) A glass preform for precision press-molding composed of the optical glass of claim 108.

264. (New) A glass preform for precision press-molding composed of the optical glass of claim 217.

265. (New) An optical part composed of the optical glass of claim 218.

266. (New) An optical part composed of the optical glass of claim 217.

267. (New) An optical part prepared by precisely press-molding the glass preform of claim 261.

268. (New) An optical part prepared by precisely press-molding the glass preform of claim 262.

269. (New) An optical part prepared by precisely press-molding the glass preform of claim 263.

270. (New) An optical part prepared by precisely press-molding the glass preform of claim 264.

271. (New) A glass preform for precision press-molding composed of the optical glass of claim 119.

272. (New) A glass preform for precision press-molding composed of the optical glass of claim 120.

273. (New) A glass preform for precision press-molding composed of the optical glass of claim 121.

274. (New) A glass preform for precision press-molding composed of the optical glass of claim 122.

275. (New) A glass preform for precision press-molding composed of the optical glass of claim 123.

276. (New) A glass preform for precision press-molding composed of the optical glass of claim 124.

277. (New) An optical part composed of the optical glass of claim 119.

278. (New) An optical part composed of the optical glass of claim 120.

279. (New) An optical part composed of the optical glass of claim 121.

280. (New) An optical part composed of the optical glass of claim 122.

281. (New) An optical part composed of the optical glass of claim 123.

282. (New) An optical part composed of the optical glass of claim 124.

283. (New) An optical part prepared by precisely press-molding the glass preform of claim 113.

284. (New) An optical part composed of the optical glass of claim 11.

285. (New) A glass preform for precision press-molding composed of the optical glass of claim 118.

286. (New) An optical part composed of the optical glass of claim 118.

287. (New) A glass preform for precision press-molding composed of the optical glass of claim 218.

288. (New) An optical part composed of the optical glass of claim 218.